

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of)	
)	
Reallocation of the 216-220 MHz,)	WT Docket No. 02-08
1390-1395 MHz, 1427-1429 MHz,)	RM-9267
1429-1432 MHz, 1432-1435 MHz,)	RM-9692
1670-1675 MHz, and 2385-2390 MHz)	RM-9797
Government Transfer Bands)	RM-9854
)	RM-9882

**REPLY COMMENTS OF
GENERAL ELECTRIC MEDICAL SYSTEMS INFORMATION TECHNOLOGIES**

General Electric Medical Systems Information Technologies (GEMS-IT), pursuant to Section 1.415 of the Commission’s Rules, hereby files its reply to those comments in the above-captioned proceeding that discussed the service rules that would govern the 1.4 GHz bands allocated or adjacent to spectrum allocated to the Wireless Medical Telemetry Service (“WMTS”). GEMS-IT is a member of the American Hospital Association Task Force on Medical Telemetry (“AHA Task Force”) and is fully in support of the positions taken by the AHA Task Force in the instant proceeding.

GEMS-IT will again limit its comments to specific points which are either not addressed by the comments of the AHA Task Force or which GEMS-IT wishes to amplify or support in detail.

I. ADJACENT BAND TELEMETRY USERS MUST BE LIMITED IN POWER TO PROTECT WMTS

Both GEMS-IT and Phillips Medical Systems has commented on the sensitivity of WMTS receivers to adjacent channel interference through a variety of mechanisms¹.

GEMS-IT supports the proposal of the United Telecom Council (UTC) to license primary telemetry systems' radiated power according to the degree of frequency separation between the primary telemetry system and the nearest primary WMTS frequency². GEMS-IT further notes that the specific power and field strength values proposed by UTC are in fact the same values as were proposed in the AHA-Itron Agreement, which GEMS-IT is already on record as supporting.

II. MOBILE TELEMETRY USERS MUST BE RESTRICTED TO PROTECT WMTS

GEMS-IT opposes the granting of mobile telemetry licenses anywhere in the 1429-1432 MHz band at this time. GEMS-IT disagrees with the comments of UTC³ that “[m]obile operations should operate on the same geographic boundaries as fixed systems”, insofar as those geographic boundaries permit mobile primary telemetry transmitters to approach significantly closer to WMTS systems than the equivalent fixed systems. However, GEMS-IT supports in principle UTC's alternative proposal for geographically-based automatic power controls on mobile telemetry systems, which would limit the mobile telemetry unit's power to a level that could not reasonably be expected to interfere with a WMTS system in its vicinity. GEMS-IT notes that mobile telemetry devices are highly likely to contain or have access to a GPS receiver,

¹ *Initial Comments of General Electric Medical Systems Information Technologies* at 2; *Initial Comments of Philips Medical Systems* at 2.

² *Comments of the United Telecom Council* at Section 2-G

³ *Comments of the United Telecom Council* at Section 2-D

and that based on the GPS position and a database of WMTS sites, geographic limiting such as UTC proposes is quite technically feasible.

GEMS-IT proposes that mobile licenses for primary or secondary telemetry be withheld until a more detailed proposal of service rules for automatically limiting mobile telemeters can be developed.

In the alternative, GEMS-IT herewith presents a set of proposed service rules which may at least minimize the chances of harmful interference to WMTS systems:

1. Secondary mobile licenses, i.e. licenses in the primary WMTS band, should be limited to a 70 mile spacing from any WMTS site, with any reduced spacing subject to a showing equivalent to 90.621(b)(4).
2. Primary mobile licenses should be limited to a power which ensures that the mobile telemetry unit cannot generate a field strength in excess of 50mV/m at the periphery of any WMTS site at the nearest approach of the primary site license. The maximum power of the mobile telemetry license will thus depend on the approach of the site license to any WMTS sites.

III. THE ORIGINAL AHA – ITRON AGREEMENT “BAND FLIP” ENHANCES THE WMTS WITHOUT NEGATIVELY IMPACTING THE TELEMETRY COMMUNITY

GEMS-IT strongly supports the position taken by the AHA Task Force⁴ that the Commission should adopt the original “band split” between WMTS and Utility Telemetry, wherein WMTS primary spectrum is 1429-1431.5 MHz in the “band flip” areas.

⁴ *Initial Comments of the AHA Task Force* at 1.

While the AHA-Itron proposed band flip is somewhat assymmetric, the assymmetry does not negatively impact telemetry system manufacturers or users, whose designs must be capable of operating over the entire 1427-1432 MHz band

The Commission proposes that the effect of the original “band split” can be achieved by private contractual arrangements. GEMS-IT strongly questions the practicality of this approach, since any one user of either of the two communities can refuse to participate in such an arrangement. Indeed, if site licensing is adopted, it is not clear that a private contractual arrangement can effectively limit a future user from obtaining a license for a channel which is in the primary spectrum but which is the subject of a private agreement, hence any private agreement is of limited value if a future user can neutralize the agreement’s utility.

As noted both by GEMS-IT and Phillips, WMTS receivers are susceptible to degradation from high power adjacent channel transmitters. Assuming that the 1432-1435 MHz band licensees include high powered mobile users, *e.g.*, services similar to PLMR, then the top few hundred kHz of the WMTS band in the flipped areas will be nearly useless, as WMTS equipment manufacturers will effectively have to sacrifice it to the front end filters needed to protect against receiver blocking.

GEMS-IT urges the Commission to reconsider adopting the original AHA-Itron band flip.

IV. CHANNELIZATION IS NOT NECESSARY NOR ADVANTAGEOUS FOR WMTS

The *Notice* requested comment on a channel plan for telemetry in the 216-220 MHz, 1427-1429.5 MHz and 1429.5-1432 MHz bands. GEMS-IT observes that the *Notice* requested comment on a channel plan for telemetry, not a channel plan for the WMTS.

However, Spacelabs' comments⁵ appear to suggest channelization requirements for WMTS. Spacelabs suggests that the channelization scheme adopted "permit flexibility for 25kHz, 50kHz, and 100kHz spaced channels for narrowband systems, and the ability to aggregate channels to support wideband systems".

GEMS-IT strongly opposes any channelization requirements for the WMTS.

No need for nor advantage to channelizing the WMTS has been entered into the record. Historically, while most medical telemetry systems have operated on a channelized basis, channelization has only been required for Part 90 systems, where the channelization was and is required to share spectrum with PLMR systems. Medical telemetry systems operating under Part 15 were required only to confine their emissions to a single [6 MHz] broadcast TV channel⁶.

Channelization requirements for the WMTS are not necessary and would inhibit innovation.

V. TELEMETRY CHANNELIZATION SHOULD PERMIT AGGREGATION

GEMS-IT supports allowing telemetry licensees to aggregate channels, to make it [more] practical for telemetry systems to operate on a more intermittent or lower duty cycle basis, because of a higher channel throughput. GEMS-IT fears that if channel aggregation is not permitted, the minimum channel bandwidth will be set unnecessarily wide, resulting in inefficient usage of the telemetry band spectrum.

Anticipating that telemetry transmitters' total power will be limited independently of their occupied bandwidth, GEMS-IT believes that overall, a more broadly spread telemetry transmitter will reduce the chances of harmful interference to an adjacent channel WMTS system

⁵ *Comments of Spacelabs Medical, Inc.* at Section 1.E

⁶ *47CFR15.242(c)*

operating in the primary WMTS band, due to reduced power spectral density in the adjacent channel to WMTS or from spurious mixing into the WMTS band.

VI. SECONDARY STATUS FOR WMTS IN THE 1429.5-1432 MHZ TELEMETRY BAND ENHANCES THE VALUE OF THE WMTS AT NO COST TO THE TELEMETRY COMMUNITY

Phillips Medical Systems supports a secondary status for WMTS in the primary telemetry spectrum.⁷ GEMS-IT strongly supports this position, which was also anticipated by the AHA-Itron agreement.

In order to operate across the entire WMTS spectrum, WMTS devices must perform be able to operate across the entire range of 1427-1432 MHz. Thus, there is no additional burden on the manufacturers of WMTS equipment to support secondary operation in the telemetry band, and there are significant public benefits, as described below:

There are areas in hospitals, e.g., operating rooms, radiology procedure areas, and in many cases physical therapy / rehabilitation areas which usually have the following characteristics:

1. The nature of the medical activities taking place in these areas is such that WMTS devices can provide improved patient care and cost savings. Indeed, wireless monitoring of cardiac patients undergoing rehabilitation has been the standard of care for some years. Furthermore, many of the present and potential uses of WMTS devices in the areas can be restricted to the given area, *i.e.*, the individual WMTS devices which are or will be used in these areas do not travel outside of the specific areas..

⁷ *Initial Comments of Philips Medical Systems at 2.*

2. The areas are efficiently screened from the outside world, *i.e.*, the RF propagation loss from such areas is such that a maximum power WMTS transmitter would be attenuated to a field strength less than the general Part 15 limit, indeed often to ambient noise floor, at any point on the perimeter of the hospital;
3. The areas are not efficiently screened from adjacent areas of the hospital; e.g. when a door is opened from one of these areas to the adjoining corridor. Thus, in general frequencies cannot be reused between the specific WMTS systems restricted to these special areas and the general WMTS systems which roam about the hospital as the patients ambulate or are moved.

A secondary status for WMTS devices in the telemetry primary band would make this spectrum available to those hospitals which could use it, thereby freeing the primary WMTS spectrum for additional uses, further enhancing the clinical benefits of the WMTS. It is extremely improbable that such a secondary WMTS device would be deployed in a such a way as to cause interference to a primary user; the lower transmit power and higher sensitivity of the WMTS device as opposed to the [primary] telemetry device almost ensure that the WMTS would be jammed long before the WMTS device interfered with the primary telemetry system.

In practice, no hospital would be likely to use a secondary status WMTS device anywhere other than a fully screened area as described above, under which conditions the WMTS device would be physically incapable of interfering with the primary user.

Because the uses anticipated in this section are relatively small markets compared to the WMTS market as a whole, and in many cases may represent simply additional clinical uses of the same WMTS device design, it is important that the secondary operation impose no additional

service rules beyond secondary status, *e.g.*, that the general WMTS type acceptance apply to the secondary use.

VII. CONCLUSION

For the foregoing reasons, General Electric Medical Systems Information Technologies urges the Commission to take action consistent with the recommendations expressed in the initial and reply comments of the AHA Task Force, GE Medical Systems Information Technologies, and Philips Medical Systems.

Respectfully submitted,

**GENERAL ELECTRIC MEDICAL SYSTEMS
INFORMATION TECHNOLOGIES**

Scott J. Carter
GE Medical Systems Wireless Center
of Excellence
15222 Del Amo Avenue
Tustin, CA 92780
(714) 247-4119

March 18, 2002